

REMARKS

Claims 1-17 were examined in an Office action dated 02 February 2005. Claims 1, 3, 5, 9 and 12 are amended herein. Claims 13-14 are canceled. Claims 2, 4, 6-8, 10-11, and 15-17 are pending. Applicants respectfully assert that all amendments are supported by the original disclosure and do not introduce new matter. Moreover, Applicants further respectfully assert that the amendments merely clarify the scope of the claims.

In the subject Office Action dated February 2, 2005, claims 3 and 5 were rejected under 35 U.S.C. 112, second paragraph. Specifically, "Claim 3 line 2, in reference to the retract mechanism, the phrase 'is a user control input' is found to be indefinite since the limitations preceding this phrase already disclose the retract mechanism as being user controlled." In response thereto, Applicants have revised claim 3 to strike the redundancy. Further, "Claim 5 recites the limitation 'the handle' in line 2. There is insufficient antecedent basis for this limitation in the claim." Applicants have revised claim 5 to add antecedent basis: "further comprising a handle proximally attached to the shaft, the firing trigger moveably attached to the handle".

With regard to substantive rejections, Claims 1-5, 7-10, 12 and 14-17 were rejected under 35 U.S.C. 102(b) as being anticipated by Green et al. (USPN 5,509,596) In addition, Claims 6, 11 and 13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. (USPN 5,509,596) in view of Green et al. (USPN 5,040,715).

Turning to Claim 1, the claim as amended recites in part a surgical instrument having an end effector operatively configured to clamp upon tissue and be subsequently responsive to a longitudinal firing motion to perform a surgical operation. A firing mechanism couples each user actuation of a firing trigger into distal advancement of a firing member in order to accomplish a portion of longitudinal firing motion. The firing member is prevented from proximal movement between user actuations by an anti-backup mechanism having a locking plate encompassing the firing member that tilts to lock.

The rejection relied in part upon the disclosure of the '596 Green patent to teach "a firing member (38, 138) slidably receiving by the shaft (16) to transfer the firing motion to the end effector (18) between an unfired position and a fully fired position... [and] a locking device (36)

responsive to the firing member (38, 138) having traversed from the unfired position toward the fully fired position to tilt the locking plate (46) to the locked position”.

However, Applicants note that the afore-mentioned mechanism in the ‘596 Green patent performs the function of clamping the distal jaw mechanism 18 onto tissue “for a controlled adjustment of the spacing between the cartridge jaw and the anvil jaw”. (Col. 5, lines 10-33, also see Col. 11, lines 9-52) Moreover, this clamping is performed by a user moving a pusher rod 136 and then subsequently squeezing an actuating handle 14 for firing the staples. This actuating handle 14 only performs a single stroke to perform stapling. (Col. 10, lines 48-56). Therefore, ‘596 Green fails to anticipate the claimed invention that recites a multiple stroke firing trigger with a firing mechanism held between strokes..

Furthermore, the ‘596 Green patent only teaches use of a single firing stroke to fire staples since the staple cartridge is traverse to the shaft. Thus, if a longer line of staples is to be formed rather than a shorter line, the length of firing stroke is the same. Consequently, there was no motivation or suggestion in ‘596 Green to modify its firing mechanism to address the problem of force to fire a longer staple cartridge that is in line with the firing member. In particular, the cited references either singularly or in combination fail to teach or suggest incorporation of an anti-backup mechanism as claimed for a multiple firing stroke surgical instrument to impart a distally moving longitudinal firing motion to a clamped end effector as a portion of the full firing travel accomplished by each firing stroke.

Consequently, reconsideration and allowance of claim 1 is respectfully requested, along with claims 2-8 that depend therefrom.

Turning to independent claim 9, the claim as amended recites in part a retraction spring proximally connected to the rack of a locking mechanism that impedes firing member motion in the return direction under urging of a retraction spring that is attached to a rack that is in turn connected to the firing member. Thereby, a mechanism operably may repeatedly couple intermittently a firing control to the rack to impart the firing motion without inadvertent retraction.

The claim was rejected for the reasons given above for FIG. 1. Applicants respectfully assert that Claim 9 as amended should be allowed for the reasons given above for Claim 1, as well as claims 10-11.

Turning to claim 12, the claim is amended to include the further features of dependent claims 13 and 14, which are now canceled, and thus recites in part a surgical instrument with an end effector that clamps tissue and then receives a firing motion from a firing member to sever and staple tissue from a multiple stroke firing trigger. A locking mechanism prevents retraction of the firing member between firing strokes when the firing trigger is uncoupled.

In the subject Office action, claims 12 and 14 were rejected as anticipated by '596 Green for the reasons given above for claim 1. Further, Claim 13 was rejected as unpatentable over '596 Green in view of USP 5,040,715 to Green, relying upon '715 Green to disclose a pivotal anvil in an end effector.

However, the cited references fail to teach or suggest a surgical instrument wherein stapling and severing are actuated by multiple firing strokes without problems that could arise if a firing member to an end effector was allowed to retract inadvertently between firing strokes. Consequently, reconsideration and allowance of claim 14 is respectfully requested, as well claims 15-17 that depend therefrom.

Conclusion

In light of the amendments and remarks made herein, it is respectfully submitted that the claims currently pending in the present application are in form for allowance. Accordingly, reconsideration of those claims, as amended herein, is earnestly solicited. Applicants encourage the Examiner to contact their representative, David Franklin at (513) 651-6856 or dfranklin@fbtlaw.com.

The Commissioner for Patents is hereby authorized to charge any deficiency or credit any overpayment of fees to Frost Brown Todd LLC Deposit Account No. 06-2226.

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